UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,964	02/15/2002	Herbert F. Cattell	10010327-1	1474

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EXAMINER
BASOM, BLAINE T

ART UNIT	PAPER NUMBER
2173	

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

PTOL-90A (Rev. 10/06)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE **3** MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *22 January 2007*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-37* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-21 and 24-37* is/are rejected.

7)☒ Claim(s) *22 and 23* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

The Examiner acknowledges the Applicants' amendments to independent claims 15 and

27. Regarding the pending claims, the Applicants argue that the art of record fails to teach

graphical objects superimposed over feature positions and background positions on an image of a

molecular array, as is now expressed in the amended claims. These arguments have been

considered, but are moot in view of the following new grounds of rejection, which are required

in response to Applicants' amendments.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 15-37 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent No.

7,027,930 to Cattell.

The applied reference has a common inventor with the instant application. Based upon

the earlier effective U.S. filing date of the reference, it constitutes prior art under 35 U.S.C.

102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37

CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the

inventor of this application and is thus not the invention "by another," or by an appropriate

showing under 37 CFR 1.131.

Regarding claim 15, Cattell teaches displaying an image of a molecular array, and

superimposing graphically distinct graphical objects (i.e. "shapes") representing at least two

different characteristics of data (e.g. features, backgrounds) on the molecular array, wherein

graphical objects representing different characteristics are graphically distinct from one another

and each graphically distinct graphical object represents a single characteristic of the data that is

distinct from other characteristics represented by others of the graphically distinct graphical

objects, each graphically distinct graphical object being superimposed over positions where the

data characteristics represented occur on the displayed image of the molecular array, wherein

varying positions over which various graphically distinct graphical objects are superimposed

include feature positions and background positions on the image of the molecular array (see e.g.

column 5, lines 8-12; column 9, lines 27-38; column 8, line 45 – column 9, line 2; and FIG. 5).

Accordingly, Cattell teaches a method like that of claim 1, which is for visually displaying

results of a feature extraction process carried out on data collected from a molecular array.

As per claims 16 and 17, Cattell further teaches, upon receiving an input indication of a

feature, displaying a tool tip including an alphanumeric representation of information related to

the feature, including results from a feature extraction process (see e.g. column 9, lines 46-54).

Cattell discloses that the input indication can include positioning of a graphical pointer over the

position of the feature in the displayed image of the molecular array (see e.g. column 9, lines 46-

54).

With respect to claim 18, Cattell suggests that the displayed graphical objects (i.e. shapes) can arbitrarily represent any of many different types of features or backgrounds, including outlier features and backgrounds (see e.g. column 4, lines 14-36; and column 8, lines 45-60). Accordingly, it is apparent that the user has the option of displaying graphical objects superimposed only over statistical outlier features and feature backgrounds.

Concerning claim 19, Cattell discloses that the displayed distinct graphical objects can include a first type of indication indicating a statistically valid feature, a second type of indication indicating a statistically invalid feature, a third type of indication indicating a statistically valid feature background, a fourth type of indication indicating a statistically invalid feature background, and a fifth type of indication indicating the position of a feature in the displayed image of the molecular array (see e.g. column 8, line 45 – column 9, line 2; and column 9, lines 38-45: a plurality of shapes are superimposed over features and backgrounds, any of which can be considered to indicate valid or invalid features or backgrounds, and the position of the feature or background).

As per claims 20 and 21, Cattell suggests that the shapes of the above-described indications are arbitrary, since they are dependent upon the detected pixel values of the array and can even be changed by the user (see e.g. column 4, lines 14-36; column 8, lines 45-60; and column 9, lines 38-64). Accordingly, it is apparent that any of the shapes (i.e. types of indications) displayed in the molecular array of Cattell can be any of the figures recited in claims 20 and 21.

Concerning claim 24, Cattell further teaches reading a sample exposed array, visually displaying the results (e.g. the array and overlaid shapes) like described above, and processing

the results from reading based on the visually displayed results (see e.g. column 8, line 22 -

column 9, line 64). Accordingly, Cattell is considered to teach a method like that of claim 24.

As per claims 25 and 26, Cattell further teaches forwarding data representing a result of a

processed array, wherein the data is communicated to a remote location (see e.g. column 9, line

65 – column 10, line 6).

Regarding claim 27, Cattell describes graphical user interface functionality comprising: a

molecular array image display component that displays an image of a molecular array; and a

feature-extraction-results rendering component that displays feature extraction results as

graphical objects (i.e. "shapes") superimposed on the displayed image of the molecular array, the

graphical objects including distinct graphical objects representing at least two different

characteristics of data (e.g. features, backgrounds) determined by feature extraction results,

wherein graphical objects representing different characteristics are graphically distinct from one

another and each graphically distinct graphical object represents a single characteristic of the

data that is distinct from other characteristics represented by others of the graphically distinct

graphical objects, wherein graphically distinct graphical object are superimposed over positions

where the data characteristics represented occur on the displayed image of the molecular array,

wherein varying positions over which various graphically distinct graphical objects are

superimposed include feature positions and background positions on the image of the molecular

array (see e.g. column 5, lines 8-12; column 9, lines 27-38; column 8, line 45 – column 9, line 2;

and FIG. 5). Accordingly, Cattell teaches a graphical user interface like that of claim 27, which

displays results of a feature extraction process carried out on data collected from a molecular

array.

As per claims 28 and 29, Cattell discloses that the distinct graphical objects (i.e. shapes) represent at least two of: a position of a feature within the image of the molecular array, a statistically valid feature, a statistically invalid feature, an outlier feature, and a statistically valid background region around a feature (see e.g. column 8, line 45 – column 9, line 2; and column 9, lines 38-45: a plurality of shapes are superimposed over features and backgrounds, any of which can be considered to indicate valid or invalid features or backgrounds, and the position of the feature or background).

Concerning claim 30, Cattell discloses that positions of features (i.e. centers of features), upon which shapes are overlaid, are found by analyzing pixel intensities within and near the feature (see e.g. column 8, lines 45-60). That is, the distinct graphical object (shape) representing such a feature is a distinct graphical object representing a center of a feature found by analyzing pixel intensities within and near the feature, as is claimed.

Concerning claim 31, Cattell suggests that distinct graphical objects representing outlier features includes at least one of: distinct graphical objects representing outlier features due to non-uniformity of pixel intensities within the feature, a distinct graphical object representing an outlier feature due to statistical variance in signal intensity from other features on the molecular array, and a distinct graphical object representing an outlier due to both non-uniformity of signal intensities within the feature and statistical variance in signal intensity from other features on the molecular array (see e.g. column 8, lines 45-60).

Concerning claim 32, Cattell suggests that distinct graphical objects representing outlier background regions includes at least one of: distinct graphical objects representing outlier background regions due to non-uniformity of pixel intensities within the feature, a distinct

graphical object representing a background region due to statistical variance in signal intensity

from other background regions on the molecular array, and a distinct graphical object

representing an outlier due to both non-uniformity of signal intensities within the background

region and statistical variance in signal intensity from other background regions on the molecular

array (see e.g. column 8, lines 45-60).

With respect to claim 33, Cattell suggests that the displayed graphical objects (i.e.

shapes) can arbitrarily represent any of many different types of features or backgrounds,

including outlier features and backgrounds (see e.g. column 4, lines 14-36; and column 8, lines

45-60). Accordingly, it is apparent that the user has the option of displaying graphical objects

superimposed only over statistical outlier features and feature backgrounds.

As per claims 34 and 35, Cattell discloses that the graphical user interface displays

numerical, textual, or numerical and textual information specific to a feature in a tool tip in

response to input identifying a particular feature, wherein the input constitutes positioning of a

cursor over the feature in the displayed image of the molecular array (see e.g. column 9, lines 46-

54).

Concerning claim 36, Cattell suggests that each of the distinct graphical objects (i.e.

shapes) is distinct from the other graphical objects in terms of shape (see e.g. column 4, lines 14-

36; column 8, lines 45-60; and column 9, lines 38-64: the shape overlaid upon each feature and

background is arbitrary, and can be different for each feature and background, since it is

dependent upon the detected pixel values near each feature and background).

As per claim 37, Cattell discloses that the distinct graphical objects (i.e. shapes) represent

at least two of: a position of a feature within the image of the molecular array, a statistically valid

feature, a statistically invalid feature, an outlier feature, and a statistically valid background region around a feature (see e.g. column 8, line 45 – column 9, line 2; and column 9, lines 38-45: a plurality of shapes are superimposed over features and backgrounds, any of which can be considered to indicate valid or invalid features or backgrounds, and the position of the feature or background).

Allowable Subject Matter

Claims 22 and 23 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The following is a statement of reasons for the indication of allowable subject matter: As per claims 22 and 23, the prior art teaches superimposing graphical objects representing statistically valid features, statistically invalid features, statistically valid feature backgrounds, statistically invalid feature backgrounds, and positions of features on an image of a molecular array, like claimed. The prior art, however, does not explicitly teach coordinating the colors of such graphical objects like recited in claims 22 and 23. That is, the prior art does not explicitly teach graphical objects representing statistical valid features and statistically valid feature backgrounds, these graphical objects having a common color distinct from that of graphical objects representing invalid features, invalid feature backgrounds, and feature positions, as is expressed in claim 22. Similarly, the prior art does not explicitly teach graphical objects representing statistically invalid features and statistically invalid feature

backgrounds that have a common color distinct from that of graphical objects representing

invalid features, invalid feature backgrounds, and feature positions, as is expressed in claim 23.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this

Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a).

Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after

the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37

CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

however, will the statutory period for reply expire later than SIX MONTHS from the date of this
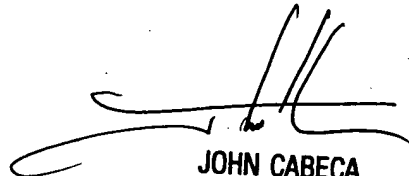
final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Blaine Basom whose telephone number is (571) 272-4044. The

examiner can normally be reached on Monday through Friday, from 8:30 am to 5:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, John Cabeca can be reached on (571) 272-4048. The fax phone number for the

organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

applications is available through Private PAIR only. For more information about the PAIR

system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR

system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would

like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

btb
4/16/2007

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